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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,045	05/13/2005	Shin Utsunomiya	Toyo-5	2031

54884 7590 08/03/2007  
GOMEZ INTERNATIONAL PATENT OFFICE, LLC  
1501 N. RODNEY STREET  
SUITE 101  
WILMINGTON, DE 19806

EXAMINER
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SASTRI, SATYA B

ART UNIT	PAPER NUMBER
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1713

MAIL DATE	DELIVERY MODE
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08/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/535,045	UTSUNOMIYA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Satya B. Sastri	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/5/05, 8/29/05, 2/22/07</u> . | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> .           |

### **DETAILED ACTION**

1. This office action is in response to application filed on May 13, 2005. Preliminary amendment dated July 19, 2005 is made of record. Claims 1-5 are now pending in the application.

#### ***Information Disclosure Statement***

2. It is noted sheet 1 of the IDS filed on 7/05/05 has been corrected for an incorrect publication date and resubmitted on 8/29/05. Therefore, the examiner has crossed out sheet I of the IDS dated 7/05/2005.

#### ***Claim Objections***

3. Claims 1-5 are objected to for the following informalities:

In claims 1 and 4, parenthesis may be deleted. It is suggested that a comma be inserted after the parenthetic expression and followed by "has been added to portions of the carboxylic groups".

In claims 2 and 5, the word "carboxyl" should be replaced with "carboxylic" for consistency throughout the claim language.

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In claim 3, the phrase "comprising causing" may be replaced by the word "subjecting". The claim may be amended as "A method for forming a hydrogel by subjecting the photosensitive resin as recited in claim 1 to photopolymerize".

In claim 4, "A hydrogel characterized by being produced by causing" is not a proper phrase and may be replaced by "A hydrogel produced by subjecting...".

Appropriate corrections are required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Instant claims recite the limitation "the carboxylic groups" in the body of the claim. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okuhara et al. (US 5,102,775) in view of Minoru et al. (JP 11-327139, machine translation, cited as an X reference in the International Search Report).

Okuhara et al. disclose light sensitive compositions and image forming method using the compositions. The composition comprises (A) a photocurable resin having light sensitive groups capable of being crosslinked or polymerized by light irradiation and ionic groups, (B) a sensitizer which is excited by absorption of visible light and has a property to interact with the resin (A), (C) a water-insoluble polymerization initiator and optionally, (D) at least one specific nitrogen-containing compound (abstract).

The photocurable resin (A) has anionic or cationic groups besides the light sensitive groups. Anionic group such as a carboxylic group is contained in an amount such that the acid value of the photocurable resin falls within the range of 20 to 300 mg KOH/g resin (col. 4, lines 1-10).

The anionic photocurable resin having (meth)acryloyl groups as the light sensitive groups may be prepared by linking a glycidyl group-containing unsaturated compound to an acrylic resin having a high acid value. The acrylic resin of a high acid value may be obtained by copolymerizing  $\alpha,\beta$ -ethylenically unsaturated acid, such as acrylic acid or methacrylic acid with at least one unsaturated monomer. Disclosed examples of glycidyl group-containing unsaturated compound to be linked to the acrylic resin include glycidyl acrylate and glycidyl methacrylate (col. 4, lines 46-68, col. 5, lines 1-6).

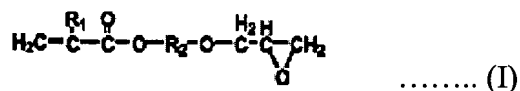
The composition for the light sensitive electrodeposition coating may be prepared by adequately mixing the resin (A) that is water-solubilized by neutralization, the sensitizer (B), the

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polymerization initiator (C), the nitrogen-containing compound (D) and another compound (E) and then adding water. The water-dispersion or water-solubilization of the photo-curable resin (A) may be made by neutralizing the resin (A) with an alkali when the resin has anionic group such as a carboxylic group. The preferred amount of the neutralizing agent ranges from 0.2 to 1.0 equivalent (col. 23, lines 19-25, col. 22, lines 11-40).

The prior art silent with regard to modification of acrylic resin with glycidyl group-containing unsaturated monomer (I) recited in instant claim 1.

The secondary reference to Minoru et al. discloses resin compositions capable of being developed by aqueous alkali solution. The photocurable resin comprises a carboxyl group-containing polymer modified by a glycidyl group-containing unsaturated monomer of the general formula:



wherein R<sub>1</sub> is hydrogen or methyl group, R<sub>2</sub> is alkylene, cyclohexene-1, 4-dimethylene or binding chain. Furthermore, the prior art discloses that the preferred compound I is 4-glycidyl ether butylacrylate (abstract). It would have been obvious to one of ordinary skill in the art to modify the carboxyl group-containing acrylic resin of Okuhara et al. by glycidyl compound (I) of Minoru et al. because Minoru et al. disclose that acrylic resins modified by glycidyl compound (I) are capable of being developed by aqueous alkali solution and have heat resistance and solvent resistance (abstract).

With regard to the acid value, the primary reference discloses a range of 20-300 mg KOH/g resin and one skilled in the art would be motivated to use resins with high acid values

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because a high acid content would facilitate water-solubilization of the resin upon neutralization (col. 4, lines 22-26).

With regard to claim 3, given that the primary reference discloses photopolymerization of a water-soluble resin having an acid value up to 300 mg KOH/g resin, it must inherently result in the formation of a hydrogel as recited in the present claim.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: US 5,741,622 and US 5,399,604 do not teach or suggest acrylic resin compositions modified by the specific glycidyl ether group-containing (meth)acrylates recited in present claims.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri at (571) 272 1112. The examiner can be reached on Wednesdays and Fridays, 7AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached at (571) 272 1114.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Satya Sastri*

SATYA SASTRI

August 1, 2007